

**COMPREHENSIVE EQUIPMENT REPLACEMENT AND BUDGET PROGRAM FOR  
EAU CLAIRE FIRE RESCUE**

**STRATEGIC MANAGEMENT OF CHANGE**

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## **ABSTRACT**

An equipment replacement and funding plan did not exist for Eau Claire Fire Rescue. The department had an excellent apparatus replacement program with an appropriate funding source in place to meet the existing and future requirements of the organization, but an equipment replacement program was not available.

During the 1999 fiscal year budgeting process it became disturbingly noticed by all involved that the budgeting process appeared to be ill conceived with little-to-no justification for requests. Some department equipment was becoming mature with "crisis purchasing" occurring, which caused questionable equipment purchases.

This research project analyzed reasons why fire departments develop equipment replacement and funding plans and the life expectancies of different pieces of equipment. Documents within Eau Claire Fire Rescue were also evaluated to determine a method to fund a replacement plan. The purpose of this project was to justify the need and to develop an equipment replacement and funding plan for Eau Claire Fire Rescue.

This research employed both descriptive and action research methodologies to identify:

1. What motivates fire departments to develop and implement equipment replacement plans?
2. What are the recognized fire service life expectancy standards for emergency fire equipment?
3. Are financial resources available to fund an equipment replacement plan in Eau Claire Fire Rescue?

The procedures used were a literature review utilizing subject matter research from the University of Wisconsin Eau Claire Library and the National Emergency Training Center

Library at Emmitsburg, Maryland along with the review of Eau Claire Fire Rescue specific financial documents.

The results of the review revealed that fire departments implement equipment replacement plans to limit unexpected large capital expenditures and to ensure their equipment cache does not become obsolescent. Reduced maintenance costs and equipment reliability were also reasons given. This author determined Eau Claire Fire Rescue could fund the replacement plan by making yearly contributions to an equipment replacement fund out of the general fund budget.

As a result of this research project, an equipment replacement and funding plan was developed and a process for implementation of the planning concept was detailed for approval by the City of Eau Claire Budget Team and the Eau Claire Fire Rescue staff.

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## INTRODUCTION

There is not a recognized equipment (non-vehicle) replacement plan for Eau Claire Fire Rescue. The department has had an apparatus replacement program with an appropriate funding source in place to meet the existing and future requirements of the organization for many years.

The equipment in question is typically replaceable items that have a predictable work life. When starting the project, the author attempted to identify large dollar items (i.e., Self-Contained Breathing Apparatus, defibrillators, and service gear) and progressed to identifying almost every item on the department that has a need for periodic replacement (i.e., radios, extrication equipment, fire hose, office equipment, and appliances).

During the 1999 fiscal year budgeting process (conducted in 1998) it became painfully perceived by all involved that the Department's equipment budgeting process emerged as being ill conceived with little-to-no justification for the requests. The most significant flaw was the lack of direction for purchase plans. It appeared to the Budget Team (members include: the City's Finance Director, the Finance Director's Assistant, the Director of Planning and Development and a representative from the City Manager's Office) that the fire department was simply placing a wish list on the table for consideration and typically had to struggle to identify a sound justification for the requests.

As a result, there was not a method to anticipate future equipment purchase and funding needs. Major equipment purchases needed to occur in the near future due to high maintenance costs and technological obsolescence. Funds to purchase the equipment may be inadequate or non-existent. Additionally, the lack of a proactive approach to equipment replacement leads to "crisis purchasing," which may not afford the department the most effective, efficient and technologically up-to-date inventory of equipment. The practice of purchasing equipment in a

crisis situation also subjects the department to criticism from the City of Eau Claire's Budget Team and ultimately the City Council, which must approve the final budget.

The purpose of this research project was to develop an equipment replacement and funding plan for Eau Claire Fire Rescue. This author employed a combination of descriptive and action research methodologies to answer the following research questions:

1. What motivates fire departments to develop and implement equipment replacement plans?
2. What are the recognized fire service life expectancy standards for emergency fire equipment?
3. Are financial resources available to fund an equipment replacement plan in Eau Claire Fire Rescue?

## **BACKGROUND AND SIGNIFICANCE**

The City of Eau Claire is a moderate-sized community located in west central Wisconsin approximately 90 miles east of Minneapolis/St. Paul, Minnesota. The city covers approximately 56 square miles with a population of 61,452 (*City of Eau Claire 1999 Budget, 1999*). Eau Claire has experienced population growth that has topped 7% for the past five years due to massive escalation in high-tech manufacturing industries.

The community supports a diverse composition of health care, manufacturing, retail, commercial, residential, and recreational areas. As the city has grown in population and complexity, the demand for services has increased as well.

Eau Claire Fire Rescue is a full-time paid fire rescue department with an authorized force of 92 sworn career personnel and two civilian support staff. Administrative staff consists of the

Fire Chief, an Assistant Chief responsible for administrative support, a Deputy Chief of Operations responsible for field services, and a Deputy Chief of Prevention who has oversight of the prevention/education functions along with fire cause and origin investigations. Each staff member works a 40-hour a week schedule. Operations personnel are assigned to three shifts working a 56-hour California plan schedule with a minimum staffing of 28 personnel per day. The department operates six stations serving the citizens with fire, rescue and paramedic-level transport ambulance service.

In 1992, a fire service consultant, Long and Associates were hired by the City to develop a long-range Master Plan to lead Eau Claire Fire Rescue into the future. Part of the plan detailed a vehicle replacement schedule but did not address the ordinary equipment needs of a growing organization.

Significant implications to the department have occurred as a result of not implementing an equipment replacement plan. During the fiscal year (FY) 1999 budget process, simple questions were raised by the Budget Team as to the life expectancy and age of the existing equipment in question. An embarrassed fire department staff could not answer these simple and basic questions and subsequently lost the special funding for the item during the year. Even with significant justification from department staff to the Budget Team during a special session, the item was not given funding. Even though the item was not funded, it was considered an essential purchase for the department and consequently purchased using line-item money not designed for this purchase. The result was not favorable in any light. The Budget Team was extremely displeased with the department's action, which may affect future budget processes, and the money taken from the line items in question did not have the funds available to make desired and designated purchases.

The department was given a firm warning by the City Manager not to attempt such behavior in the future. Eventually, the Budget Team ruled that the purchase was required under extenuating circumstances, but the incident could have been avoided if the department had planned for the replacement of the equipment. A similar situation occurred in 1996 when a new ambulance was purchased and, because of an oversight, some of the equipment for the new unit was not listed in the budget. Scrutiny by certain City Council members continues today concerning the validity of some of the department's purchases.

Another critical question associated with no recognized equipment replacement plan is, will the department have the funds in the future to replace aged equipment? Within the next five years, the department's fifty-five self-contained breathing apparatus (SCBA), ten defibrillators, and ninety-two sets of service gear will need to be replaced. With an estimated replacement cost of \$250,000 for the SCBA's, \$75,000 for defibrillators and \$125,000 for the service gear (Appendix B), the department will need to expend nearly one-half million dollars to keep the equipment status quo.

This is only addressing the large dollar needs of the above mentioned three items not considering the remaining daily requirements of a modern fire/medical organization. Another example of needed funds is the constant struggle to maintain required technological upgrades. Continual improvement of Eau Claire Fire Rescue's communication and computer capabilities has been and will continue to be one of the core priorities of the organization. The cost of maintaining up-to-date radios and computers challenged the budgeting process and will continue to do so in the future.

Successful organizations and their administrators must seek out and welcome change. The Strategic Management Of Change Course, of the National Fire Academy's Executive Fire



Officer Program, endorses the Change Management Model (Appendix A) and the concept that ineffectiveness or inefficiency in organizations can be overcome by changing the department's focus towards long-term planning. Effective and efficient equipment purchases should be made as a result of planning; including fiscal requirements and group supported equipment specifications.

## LITERATURE REVIEW

The 1991 National Fire Protection Association (NFPA), *Fire Protection Handbook*, states the purchase and replacement costs of fire equipment should be a regular item of the fire department budget. Systematic equipment replacement provides the fire department with reliable equipment at all times. Improvements in fire equipment design can be introduced, maintenance costs become more favorable, operating efficiency increases, and equipment remains reliable. An equipment replacement fund does exist in the annual budget, but a plan for replacing the equipment does **not** exist.

Chatterton & Chatterton (1992), convey that the big budget killer for most fire departments is the cost of replacing large ticket equipment. An equipment replacement schedule should be used to plan resources to fund these equipment purchases. The author of an article in *Fire Chief Magazine* (1992, September), Jack Cottet, believes every department should have a written equipment replacement policy in which units are scheduled for replacement based on age and expected condition. He promotes, a program can go a long way towards removing surprises to the governing body such as suddenly appearing before them and breaking the news that they need to replace \$250,000 worth of SCBA's. Carl E. Peterson (June 1994) states that delaying replacing fire equipment may cause departments to replace a lot of equipment at one time. There

may be cost savings per unit for quantity purchases, but the entire line of equipment purchased will age at the same rate. A more scheduled approach allows desired design changes to be evaluated on an individual basis and provide that some newer and more reliable equipment will be on hand at all times. In the future Eau Claire Fire Rescue will be faced with replacing three large-dollar equipment lines at one time due to similar purchase dates.

Warren Y. Kimball's book, *How To Judge Your Fire Department* (1972), states that without systematic replacement, fire departments frequently find themselves in a "feast or famine" situation with either old and obsolete equipment which is inefficient and costly to maintain, or new equipment purchased under expensive bonds that greatly increase the cost of providing needed equipment. Systematic replacement ensures the fire department of always having up-to-date serviceable equipment that will enhance efficiency and reduce maintenance costs and operating problems.

Chief Reggie Romines of the Graham Fire and Rescue reinforces the concept and significant importance of department planning. His Executive Fire Officer Program research paper *Development of Apparatus Replacement and Funding Plan for Graham Fire & Rescue* (1996) took a critical look at the consequences of a "non-business-like" approach to purchasing from a government agency perspective. Chief Romines stated the importance of methodical research, planning, funding and installation of programs that detail a long-range goal of purchasing for all elements of the department, not just vehicles.

As an example, in the *Minnesota Fire Chief Magazine* (1984, March), the author, William Freitag, states that serious financial concerns surface with fire vehicles approaching or exceeding fifteen to twenty years of age. Corrosion, metal fatigue and crystallization in concealed areas can result in serious consequences. Maintenance costs will increase as the

equipment ages and parts for aging fire equipment may become a problem due to either lengthy delay in obtaining them or their non-availability. In either situation, the equipment would be out of service for days, weeks or months. He also reports it is unlikely that changes in the character of the municipality served by the fire department may occur in the life span of fire equipment. If this situation arises though, the suitability of fire equipment must be considered, regardless of age.

The character of the area served by Eau Claire Fire Rescue is changing dramatically due to increased growth. This author felt the suitability of equipment is an important factor when developing the equipment replacement plan. This organization has maintained a vehicle replacement schedule with appropriate funding for several years and the next logical step is to progress with an equipment replacement schedule following the same guidelines.

NFPA (1991) recommended that equipment procurement procedures, such as open competitive bidding laws, be followed to ensure the acquisition of equipment in a cost saving manner. Departments must use the open competitive bidding process in the City of Eau Claire when purchasing items over \$5,000 (*Public Purchase Policy*, 1994). However, formal seated bidding shall not be required for emergency purchases if the seated bidding procedure would prevent or hinder the emergency from being addressed appropriately. The term "emergency" means an occurrence that creates an immediate threat to life or property. With regards to the City's "emergency purchases" in the past, though legal, a recognized replacement plan would have allowed for the equipment replacements using the competitive bid process.

The *Fire Chiefs Handbook* (1995), reports equipment replacement is magnified and justified by escalating maintenance costs, increased downtime, and noncompliance with new equipment standards. The need to address these concerns, and the desire to increase efficiencies

are good reasons to replace outdated equipment. Equipment replacement is not dependent solely on age. A unit's routine workload, its physical condition and the amount of preventative maintenance received during its lifetime tend to be better indicators of whether the equipment is still reliable for first-line duty. Following manufacturer's life expectancy is considered a guideline for equipment replacement and was utilized as the standard when designing the replacement schedules. Equipment used in light duty situations can remain dependable for longer periods of time if operated and maintained properly. In most cases, equipment over the recommended manufacturer's life expectancy should not be used in first-line service.

NFPA (1991) endorses life span assessment by reporting, in general, a ten to fifteen year life expectancy as normal for first-line pumping engines. First-line ladder trucks should have a normal life expectancy of fifteen years. In fire departments where ladder trucks make substantially fewer responses to alarms than engines, a planned first-line service of twenty years may be warranted for ladder trucks. But unfortunately, NFPA does not state life span recommendations for smaller equipment items. They simply refer to the "follow manufacturer's life expectancy" standard when addressing this issue.

The American Insurance Association (1975, February), recommends equipment should be considered for replacement according to manufacturer's recommendations. Municipal officers should institute a program that would allow for purchase of new equipment, as each reaches replacement age.

Robert H. Ely (1991) promotes a replacement window for equipment based on use and potential life expectancy. He conveys, work conditions; alarm activity and haphazard use impacts on the life of each piece of equipment.

The International City Managers Association publication, *Municipal Fire Administration* (1988), suggests life expectancy for vehicles, but does not address common equipment needs. They do note equipment should be replaced, not because it is completely worn out, but because it is obsolete and less reliable for emergency service.

Chatterton & Chatterton (1994), recommend replacement of equipment per *NFPA's Fire Protection Handbook*. They state that reliability and maintenance costs though may reduce the life span of equipment.

Estimated tax collections for 2000 will be approximately \$268,000 over 1999 collections (*City of Eau Claire Budget and Finance Department, 2000*). The Eau Claire Fire Rescue equipment replacement fund balance was \$60,000 (Appendix C), on January 1, 2000. This figure was arrived at by taking the 1999-rollover fund balance of \$00.00 and adding the budgeted amount of \$60,000 for the 2000 budget. Each year the budgeted amount will increase by 3% and be reduced for anticipated purchases for the year. The expected 2000 increases in tax collections over 1999 were approximately \$1.1 million which was based on projected new-construction of \$747,850,000 for 2000. This author was confident sufficient funds were available to fund an equipment replacement plan.

It was necessary to introduce the existing vehicle and equipment schedules into the literature review, if an actual replacement plan was a product of this research project. The 2000 projected budget document (1999, July), was used to identify the needed equipment.

The literature review confirmed this author's preconceived assumptions that equipment should be considered for replacement based on a pre-set schedule due to elevated maintenance costs, reliability, and technological obsolescence. Furthermore a recognized equipment replacement and funding plan is essential for any progressive emergency service department.

## **PROCEDURES**

This author chose to research and develop an equipment replacement plan. Once developed, the replacement plan would be of little use unless the plan was implemented. For this reason, sufficient justification of why an equipment replacement plan is necessary had to be part of this research project so the governing body implements and follows this plan in the future.

Defining the life expectancy of equipment was accomplished by doing a literature review utilizing existing departmental publications, researching manufacturers recommendations and requesting a subject matter research from the University of Wisconsin Eau Claire Library and the National Emergency Training Center Library in Emmitsburg, Maryland. This author considered collecting data using a survey, but chose not to because of the many variables associated with other department's equipment replacement practices including: make and model of given equipment items, historical maintenance records, alarm activity, topographical conditions, and financial constraints. Also a search of the Internet was done, to no avail, of fire service sites, International Association of Fire Chiefs and Inferno.

After research, the author determined that a multi-step process was required to complete a comprehensive equipment replacement list. The first step was determining items that required replacement on a routine basis. After explaining the concept plan, the staff and Captains were asked to develop and submit a list of items that have a determinable life expectancy including the cost of the item when it was new and when each one was purchased. After completion of this first stage, a spreadsheet using Microsoft EXEL (Figure 1) was developed to place organization to the process. The spreadsheet (Appendix B) began as a small project and is presently nearly 50 pages of data that will grow as the full plan is implemented.

Item	Cat.	Locate	No.	Asset No.	Purchase Date	Life Expect	Original Cost	Replace Cost	Replace Year
Radio (HT-1000)	Radio	Engines	16	Various	1999	10	\$ 855.00	\$ 4,959.00	2009
Radio (Visar)	Radio	Rescues	10	Various	1998	10	\$ 855.00	\$ 3,420.00	2008
SCBA (2216 PSI)	SCBA	Engines	45	Various	1991	15	\$ 3,500.00	\$ 74,375.00	2006
SCBA (2216 PSI)	SCBA	Engines	45	Various	1991	15	\$ 3,500.00	\$ 74,375.00	2006
Defibrillator (LP-10)	EMS	R-10	1	63819	1995	8	\$ 10,000.00	\$ 12,400.00	2003
Water Dry Suit	Rescue	HR-2	1	45933	1995	6	\$ 850.00	\$ 1,003.00	2001

**Figure 1 - Replacement Master List (Partial)**

With completion of the replacement master list, a natural progression to a budget presentation spreadsheet (Figure 2) was developed. This document pulls specific items (elements over \$500.00 per unit) from the replacement master and places them on a spreadsheet that is easily interpreted by the City Budget Team and, ultimately, the City Council. The presentation spreadsheet shows the intention for purchases, not simply for this year, but for the next 16 years. The spreadsheet (Appendix C) is displayed at budget hearings in two forms; one is a five-year projection, which coincides with the budget process, and the second is a 16-year format, which notes the long-range planning concept.

ITEM	NUMBER	2000	2001	2002	2003	2004	2005
14' Boat & 25 Hp Outboard Motor	5 Total			\$5,000	\$5,150		
Cascade Air Compressor	1						
Cascade - Line Supplied Air System	2 Total						
Ventilator Fans - 4 Stroke	8 Total	\$1,290					\$4,485
Ventilator Circular Saw	3 Total	\$1,700		\$1,804			
Defibrillator (LP-10)	3 Total				\$12,400	\$12,772	\$13,155
Water Dry Suit	3 Total		\$1,003	\$1,033	\$1,064	\$1,096	\$1,129

**Figure 2 - Presentation Spreadsheet (Partial)**

This two-step process demonstrates a great deal of planning and forethought on the part of the department and also annotates a long-range, visual strategy that can be critiqued well in advance of a given year's budget process.

Two separate research methods were utilized to complete this research project. A descriptive research methodology was used to report the present status of the financial viability

for Eau Claire Fire Rescue to fund and implement an equipment replacement plan. Existing equipment and associated ages were also identified. An action research approach was used to solve the problem identified by actually developing an equipment replacement and funding plan.

A limitation noted with this project was the ability of another person to replicate this research, specifically the life-expectancy issues of items. Most data used to draw conclusions were based on the recommendation of vendors or specific regulations and some were simple the experience of the author as an administrator for Eau Claire Fire Rescue. There was no data to compare with or support this author's conclusion that the area served by this fire department was urban in nature and therefore departmental equipment was subjected to rough conditions and frequent use. Additionally, alarm activity for this equipment responding out of the various stations was much heavier than the alarm activity of the equipment responding out of other stations. Historical maintenance on the equipment was determined to be above average. Factors such as funding viability, specific equipment types, community topography, alarm activity and historical maintenance records were determined to be too subjective to be used in comparisons for a replicated research project.

With consideration of the ability to fund an equipment replacement plan, this author relied on his personal experience as an administrator in the fire service and the opinions of his staff, to determine replacement costs and schedules for the different types of vehicles (Appendix B). An annual inflation rate of three percent per year was applied to the estimated replacement costs.

Two definitions were deemed-necessary for this research project:



- Response Equipment: Equipment that responds immediately from a given location when an alarm request is received by a fire department (SCBA's, defibrillators, radios).
- Non-Response Equipment: Equipment that is used to support personnel during non-emergency operations (appliances, clothing, station radios).

## **RESULTS**

The answers to the research questions were derived from an analysis of the literature review and an assessment of the finances of Eau Claire Fire Rescue by the author of this research project.

### **1. What motivates fire departments to develop and implement equipment replacement plans?**

According to Chatterion & Chatterton (1992), the replacement of equipment has a large impact on the budgets of fire departments. Planning is necessary to ensure finances are available to fund the purchases. Jack Cottet (1992), advised a replacement plan would reduce the chance of surprising the governing body of a department with a \$250,000 expenditure for the replacement of a piece of equipment. NFPA (1991) promoted a systematic replacement plan, which would provide the fire department with reliable equipment at all times. The benefits of improved equipment design, lowered maintenance costs and increased operating efficiency were products of an equipment replacement plan.

Carl E. Peterson (1994), warned against delaying the timely replacement of fire equipment, which may force a fire department to replace a lot of fire equipment at one time. A scheduled replacement allowed for desired design changes and provided for newer and reliable

equipment on hand at all times. Warren Y. Kimball (1972), advised that the lack of a systematic replacement plan might put a fire department in a "feast or famine" situation, with either old or obsolete equipment which is inefficient and costly to maintain, or new equipment purchased by utilizing expensive bonds, thus greatly increasing the cost of providing needed equipment.

William Freitag (1984) revealed the consequences of operating with aged fire equipment. He had serious concerns over reliability and the likelihood of obtaining replacement parts for equipment in a desired time frame.

NFPA (1991) recommended public departments follow open competitive bidding practices to ensure acquiring equipment in a cost-effective manner. Departments, which have a systematic equipment replacement plan, avoid "emergency purchasing," thus reducing the chance of scrutiny by state departments.

## **2. What are the recognized fire service life expectancy standards for emergency fire equipment?**

NFPA (1991) recommends following the manufacturer specifications for life expectancy of equipment used for frequent alarm activity. The Fire Chief's Handbook (1995) reported that fire equipment replacement should not be based solely on age. Each unit's routine workload, physical condition and amount of preventative maintenance received during its lifetime were better indicators of the unit's suitability for continued use. Properly maintained equipment used for light alarm activity may be dependable for longer periods of time.

The American Insurance Association (1975) recommended the replacement of fire equipment as required or by the specifications. Each specific piece of equipment has a recommended life expectancy and should be followed.

Various manufacturers and distributors were also queried as to the life expectancy of their products. All were able to respond after noting a reluctance to submit an actual time frame. These references tended to be somewhat biased to give short-term life expectancies for their products to require a quicker replacement time frame. Several suppliers were forthright in their actions and gave straightforward information for the study.

Mine Safety Appliances (MSA) was one such organization that recommended a solid fifteen-year replacement schedule for their SCBA equipment. Opposite results came from a hose manufacturer who, after pressing for a life expectancy of their products, sent a letter stating that all hose should be replaced every five to ten years, based on use. This is somewhat disappointing for the project as most fire organizations queried during a recent Fire Academy class, use hose for many years longer than stated by the manufacturer. The end assertion from manufacturers is that it may be somewhat short sighted in comparison to reality of longevity.

### **3. Are financial resources available to fund an equipment replacement plan in Eau Claire Fire Rescue?**

An equipment replacement fund will exist in 2000 of \$60,000 (Appendix C). Anticipated general fund budget growth for 1999 was approximately \$1.1 million as a result of assessed valuation of new construction in 2000 of \$747,850,000. This author believes Eau Claire Fire Rescue will continue to experience growth for the next twenty years. An estimated \$1.5 million is needed over the next sixteen years to fund the equipment replacement plan (Appendix C). A prudent approach to the equipment replacement fund must begin next year if Eau Claire Fire Rescue is to meet its equipment replacement expenditures.

Concluding that Eau Claire Fire Rescue will benefit from an equipment replacement plan and that financial resources exist to fund the plan, this author incorporated the guidelines (Appendix C) from the results, to develop the equipment replacement plan.

The replacement guidelines for the plan were developed by this author with consideration given to conditions that were poor in the response area, but that maintenance on the equipment had been good to excellent. Additionally, implementation of the plan was impacted by the inheritance of existing older equipment as well as the initial financial ability of the department to fund the plan.

This author calculated the equipment replacement plan would cost Eau Claire Fire Rescue approximately \$1.5 million is needed over the next sixteen years. Cost per item estimates was applied with a three-percent annual inflation rate to the equipment replacement schedule. These calculations dictated a yearly balance needed in the equipment replacement fund for the next sixteen years (Appendix C). From 1999 through 2001 the department must encumber \$10,000 a year to the equipment replacement fund. Because the fund is presently started at \$50,000 a year, the impact to the department will only be an additional \$20,000, to be drawn from the increase in tax collections. Funding the equipment replacement fund in the amount of \$60,000 annually, thereafter, will provide the necessary funds to continually replace the department's equipment and vehicles.

Two additional factors may impact equipment purchases and funding at Eau Claire Fire Rescue. An inflation rate was applied by this author to determine replacement costs, but interest income on equipment fund balances was not applied by this author. Interest income on the balance can be monitored in the future with adjustments made to the yearly fund allocation, if needed. The second factor is that the governing body, at any time, can elect to put a capital

improvement funding measure before the voters. Due to recent failures of tax measures in the community, this author does not endorse a tax measure at this time. However the overwhelming body chooses to provide funding for equipment replacement, a plan is now in existence that determines when replacements should occur.

## **DISCUSSION**

The decision to research the benefits of an equipment replacement plan, develop the plan and provide a funding method for the plan was born out of a necessity to stabilize long term planning for equipment replacement. Some of the present equipment in the department was older than the recognized standards for the equipment, while the department was nearing a time when a number of large equipment items needed replacing, with no funding plan in place. A fixed funding plan option now exists whether a tax measure is sought in the future or if a tax measure fails to be endorsed at the City Council.

The new equipment replacement plan for Eau Claire Fire Rescue is a product of the findings of others in the literature review. The other authors noted in the literature review were in agreement that a systematic plan for equipment replacement is necessary to ensure a fire department has reliable, cost effective equipment to carry out the mission of the department. Consideration was given to following competitive bid procedures and to avoid "crisis purchasing." Additionally, it was noted that a financial plan needed to be in place to fund the plan to avoid presenting a governing body with a large, last minute expenditure. This author agreed that planning for purchases and providing a funding source was necessary for long-term stability.

The actual life expectancies of the different pieces of equipment were similar among all the authors in the literature review. With over twenty-one years of experience in the fire service, this author agreed that equipment should be replaced based on considerations of use and manufacturer recommendations while following a sound and fiscally responsible plan. The research also noted that level of use, maintenance of equipment and technological factors influence longevity. This author established replacement guidelines for the plan by accounting for these equipment replacement influences (Appendix C)

Other authors in the literature review, though not noted in this research project, suggested various funding mechanisms: capital improvement bonds (tax measure), lease-purchase agreements and general fund budgeting. This author pursued general fund budgeting for several reasons. The City of Eau Claire had not passed a tax measure in the last eight years. Reliance on this mechanism would have imperiled the acceptance of the replacement plan. Lease-purchase agreements are an option if a department cannot purchase the equipment outright and are typically used for large capital expenditures. In the long run, the purchases tend to be more expensive than outright purchasing. General fund budgeting was chosen because the City was able to fund the purchases due to rapid growth and increased tax collections. If the City Council decides to put a tax measure before the voters in the future, the request will be motivated by the need to use general budget funds to hire additional emergency response personnel not equipment.

Eau Claire Fire Rescue will reap many benefits from the implementation of the equipment replacement and funding plans. Old and obsolete equipment will be retired to allow for the acquisition of new equipment. With this, maintenance costs will be reduced, reliability of response equipment will increase and "crisis purchasing" will be limited. Scrutiny from state departments over "emergency purchases" will be eliminated. The funding plan will provide

dedicated resources to purchase the equipment to avoid large unexpected equipment expenditures. Providing staff with new, upgraded equipment will enhance morale among personnel. Most important, the citizens protected by the department will be better served with modern, reliable equipment with no increase in taxes.

### **RECOMNMNDATIONS**

This author recommended that the governing body of Eau Claire Fire Rescue adopt the proposed equipment replacement plan (Appendix B), subsequent to the 2000 budget process in July of 1999. Furthermore, the replacement guidelines for the different types of equipment and vehicles will also be detailed in the schedule to ensure the continued systematic replacement of equipment.

The funding plan (Appendix C), dictating necessary annual equipment reserve contributions, was presented in resolution form for City Council approval to ensure adequate funding for equipment replacement over the next sixteen years.

The research conducted on this subject matter supported the need to implement an equipment replacement and funding plan in Eau Claire Fire Rescue. Long-range financial planning will occur with the governing body, administration and personnel secure in the fact that equipment will be systematically replaced and paid for at the time of the purchases.

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*Appendices Not Included. Please visit the Learning Resource Center on the Web at <http://www.lrc.fema.gov/> to learn how to obtain this report in its entirety through Interlibrary Loan.*